

$$\begin{array}{l}
 3(4m - 2p) = 0(3) \\
 4(-3m + 9p) = 5(4) \\
 \hline
 12m - 6p = 0 \\
 -12m + 36p = 20 \\
 \hline
 30p = 20 \\
 p = \frac{2}{3} \\
 \hline
 -3m + 9(\frac{2}{3}) = 5 \\
 -3m + 6 = 5 \\
 -3m = -1 \\
 m = \frac{1}{3}
 \end{array}$$

$(\frac{1}{3}, \frac{2}{3})$

Algebra 2 5.0 E/C
Chapter 3 Review

Name: _____
Date: _____ Pd: _____

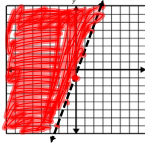
Solve the following systems using any method you choose:

- $\begin{cases} 2x + 3y = 4 \\ 3x - 4y = 7 \end{cases}$
- $\begin{cases} x + y = -12 \\ 2x - 3y = 6 \end{cases}$
- $\begin{cases} 5x - 2y = 3 \\ 2x - y = 0 \end{cases}$
- $\begin{cases} 5x - 7y = 2 \\ 3x = 4y \end{cases}$

Graph the following inequalities:

- $y - 2x \leq 1$
- $-2y + 6x < 2$

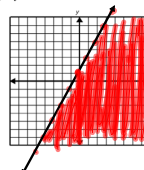
6) $-2y + 6x < 2$



$$\begin{array}{r}
 -2y + 6x < 2 \\
 -6x \quad -6x \\
 \hline
 -2y < -6x + 2 \\
 \frac{-2y}{-2} < \frac{-6x + 2}{-2} \\
 y > 3x - 1
 \end{array}$$

Graph the following inequalities:

- $y - 2x \leq 1$



$$\begin{array}{r}
 y - 2x \leq 1 \\
 +2x \quad +2x \\
 \hline
 y \leq 2x + 1
 \end{array}$$

4) $\begin{cases} 5x - 7y = 2 \\ 3x = 4y \end{cases}$ $(-8, -6)$

$$\begin{array}{r} 5(\frac{4}{3}y) - 7y = 2 \\ 3(\frac{20}{3}y - 7) = 2 \end{array}$$

$$\begin{array}{r} 20y - 21y = 6 \\ -y = 6 \\ \boxed{y = -6} \end{array}$$

$$\begin{array}{r} 3x = 4(-6) \\ 3x = -24 \\ \boxed{x = -8} \end{array}$$

3) $\begin{cases} 2(5x - 2y) = 3 \\ 5(2x - y) = 0 \end{cases}$ $(3, 6)$

$$\begin{array}{r} 10x - 4y = 3 \\ 10x - 5y = 0 \\ \hline -y = -6 \\ \boxed{y = 6} \end{array}$$

$$\begin{array}{r} 2x - 6 = 0 \\ 2x = 6 \\ \boxed{x = 3} \end{array}$$

2) $\begin{cases} 2(x + y) = -12 \\ 2x - 3y = 6 \end{cases}$ $(-6, -6)$

$$\begin{array}{r} 2x + 2y = -12 \\ 2x - 3y = 6 \\ \hline -5y = -18 \\ \boxed{y = -6} \end{array}$$

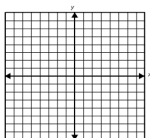
$$\begin{array}{r} x - 6 = -12 \\ \boxed{x = -6} \end{array}$$

1) $\begin{cases} 3(2x + 3y) = 4 \\ 2(3x - 4y) = 7 \end{cases}$ $(\frac{37}{17}, \frac{2}{17})$

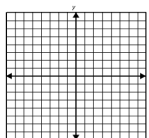
$$\begin{array}{r} 6x + 9y = 4 \\ 6x - 8y = 7 \\ \hline 17y = -3 \\ \boxed{y = -\frac{3}{17}} \end{array}$$

$$\begin{array}{r} 2x + 3(-\frac{3}{17}) = 4 \\ 17(2x - \frac{9}{17}) = 7 \\ 34x - 6 = 68 \\ +6 + 6 \\ \hline 34x = 74 \\ \boxed{x = \frac{37}{17}} \end{array}$$

7) $\begin{cases} -2y < 4x + 2 \\ y > 2x + 1 \end{cases}$



8) $\begin{cases} y \leq -2x + 4 \\ x > -3 \\ y \geq 1 \end{cases}$



Cumulative Questions:

9) Find the equation of the line through the points $(-4, 7)$ and $(-5, 2)$.

Perform the following operations given $f(x) = x^2 + 4$ and $g(x) = 2x - 6$.

10) $f(x) - g(x) =$

11) $(f \cdot g)(x) =$

12) $f(g(x)) =$

13) Find the inverse of $g(x)$.

$f(x) = x^2 + 4$; $g(x) = 2x - 6$

12) $f(g(x)) =$

$f(2x-6)$
 $(2x-6)^2 + 4$
 $(2x-6)(2x-6) + 4$
 $4x^2 - 12x - 12x + 36 + 4$
 $4x^2 - 24x + 40$

13) Find the inverse of $g(x)$.

$y = 2x - 6$
 $x = 2y - 6$
 $\frac{2y}{2} = \frac{x+6}{2}$
 $y = \frac{x+6}{2}$
 $f^{-1}(x) = \frac{x+6}{2}$

Perform the following operations given $f(x) = x^2 + 4$ and $g(x) = 2x - 6$.

10) $f(x) - g(x) =$

$(x^2 + 4) - (2x - 6)$
 $x^2 + 4 - 2x + 6$
 $x^2 - 2x + 10$

11) $(f \cdot g)(x) =$

$(x^2 + 4)(2x - 6)$
 $2x^3 - 6x^2 + 8x - 24$

9) Find the equation of the line through the points $(-4, 7)$ and $(-5, 2)$.

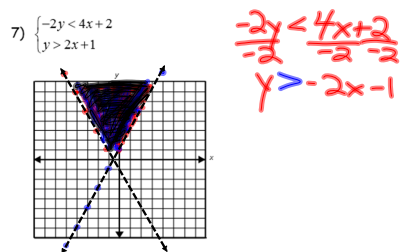
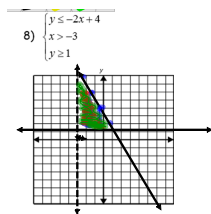
$m = \frac{y_2 - y_1}{x_2 - x_1}$

$m = \frac{2 - 7}{-5 - (-4)} = \frac{-5}{-1} = 5$

$y - y_1 = m(x - x_1)$

$y - 2 = 5(x - (-5))$

$y - 2 = 5x + 25$
 $+2 \quad +2$
 $y = 5x + 27$

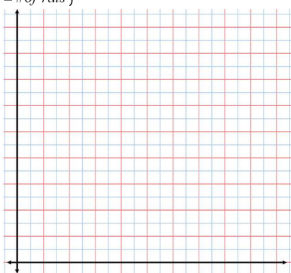


Solve the following linear programming problem (Use your graph provided, and make sure your answer is a **complete sentence**.)

14) A biologist needs at least 50 rodents for an experiment. She cannot use more than 20 mice or more than 35 rats. Each mouse costs \$5.00 and each rat costs \$3.00. How many of each rodent should she use in order to minimize the cost?

Constraints: (x = # of mice; y = # of rats)

$x + y \geq 50$
 $x \leq 20$
 $y \leq 35$



Answer: _____

Chapter 3 Test Tomorrow